

AN IMPACT OF ICT IN PUBLIC EDUCATION SYSTEM IN TAMIL NADU- A CASE STUDY OF EMIS FUNCTIONS IN TAMIL NADU

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ABSTRACT

ICT implications have percolated into the governance in Tamil Nadu especially in public education it has become an indispensable component of quality of service and also facilitated the personnel to impart the service with adequate comfort and enrich the service provided. Government of Tamil Nadu found to be the pioneer state implementing ICT operations in the public education system, particularly in school education. EMIS system has been enriching the quality of the functions through periodical planning and monitoring public school education system in Tamil Nadu. Under this circumstances, the present study examines the perceptions of the (EMIS coordinators) on the success of EMIS project in planning and monitoring of the school education system in Tamil Nadu and also the intensity of components which influence the satisfaction of the personnel executes the EMIS operations at ground level. The study collected the information from the selected Head of the public schools in three districts of Tamil Nadu. The results implied that EMIS implications have enhanced the quality of services in planning and monitoring operations of the public schools. Further, the ICT usage enriches the transparency and accountability of the public school education system.

KEYWORDS: ICT, EMIS & Public School Education System

A CASE STUDY

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Abbreviations

EMIS: Education Management Information System

G2C: Government to Citizens

G2G: Government to Government

ICT: Information and Communication Technology

IS: Information System

ITS: Information Technology Systems

IT: Information Technology

1. INTRODUCTION

E-governance encompasses numerous programs and policies which stimulate the usage of ICT in the education sector. The usage of ICTs unleashes huge benefits to all the stakeholders involved in terms of students, teachers, administrative staffs and other people who actively connected in education sectors. The ICTs operations

have also enriched the various information pertaining to the upgrade of shared working space and resources, improved access to needed information, the elevation of combined learning and radically new means of teaching and learning. E-governance and education is an established thought process that pursues to entrust in the building, managing and nourishing students, teacher, and others for accomplishing the larger benefits of e-government system. Further, e-governance provides enormous benefits to the end users in terms of decreasing the cost of transferring information and access to resources, less time consumption and cost for services. From the service provider perspective, it results in reduced processing time, error rates and complaints. The improved service consistency might also enrich equality and eventually, the benefits lead to increase the outcomes, as well as the performance benchmarks. Huge information collection facilitated to enhance Information-based decision making in the administration of the education system has as its goal augmented access, efficiency, efficacy, equity, and quality of education over effective systems of monitoring and evaluation, budgeting and planning, policy research and analysis. The whole exercise largely depends on the information assimilated in one platform. Education Management Information Systems (EMIS) facilitate the entire exercise by providing required data and information. Integrated data and information systems are at the very fundamental of EMIS development in their sustenance of the educational administration functions throughout the education system. The collation of educational data and information is an important element on which this information-based decision-making framework is constructed. Shortages or insufficiencies in its availability, utility, or quality have far-reaching implications. In addition EMIS is necessary in public schools accommodating heterogeneous sections of the society who can't afford to have good quality of education from the private sector. In such situation, enhancement of quality of education became imperative to enrich the skills and competence of the student in this situation EMIS plays a crucial role in facilitating the administration to take appropriate policy amendments to enrich public schools' quality of education. Thus, closer introspection of G to G service is required in disseminating or exchanging the required data periodically to appraise the influence of e-governance in imparting quality of services in public education in Tamil Nadu.

1.1 Significance of EMIS and its Operation

The establishment of an Education Management Information System (EMIS) is indispensable in the contemporary management of education systems. It is designed to facilitate the information-based decision-making procedures. Computer technology, database device, and technical competence provide necessary help in the data and information production capability for the education system. Though, an EMIS unit wants a clear visualization to see and know what to generate, who the product is planned to support, and which departments and units to comprise. The development of EMIS encompasses fostering a new management culture more than launching a data and information system. The procedure of data collection, integration, analysis, and dissemination is imperative, but even more analytically, it is the ethos of data sharing, information utilization, and organizational administration that leads to the efficacy of the EMIS development. It is imperative to remember that EMIS development is not IT development. Data assimilation is one of the most significant EMIS development approaches. It implied that data from manifold sources (payroll, achievement, and school census), various years, and manifold levels (student, teacher, or school level) can be connected, integrated, or combined. Data integration is envisioned to add value to the data that are already collected and available in various places within the same system. Data integration is a must transpire before an educational policy specialist or planner can conduct a high-level and high-quality policy analysis or planning exercise. These manifold sets of data are often planned in varying database applications, systematized in various platforms, and coded with the established identification code. Then the available data can be integrated or utilized in a collective manner once data integration strategy is concluded. With the help of the

coordinated management, the process of monitoring and evaluation system, a planning and policy analysis system is initiated. Thus, EMIS system became more effective for policy formulation on the basis of the analytical understanding. EMIS emerged as an important component of e-governance operations in school education which not only facilitate to take decisions but also provide empirical validation and authentication to enable to conceive appropriate policy planning.

1.2 Thematic Underpinnings of E-Governance and EMIS

The proximity of ICTs in public sector operations has not been entertained in the earlier period. The importance had got momentum since the middle of the 20th century. While Howard Gammon, in his 1954 review paper on the spontaneous treatment of paperwork, does not use the term 'electronic government' precisely, he did not concentrate on the use of ICT in the public sector (AkeGronlund, (2004). As governments are confronting multifaceted contests, they are anticipated to be innovative in their resource use and how they establish service delivery. Information communication technology (ICT) is realized as a modification agent to meet these tasks, either by enhancing efficiency, effectiveness, transparency, accountability and/or inclusiveness (UNDESA, 2014). Primarily, the emphasis was on calculating and evaluating the maturity of ICT in public administration (from 1999 to 2000), followed by scrutinizes of prerequisites and contextual issues (e. g., awareness, digital divide, trust, and infrastructure, etc.). The emphasis then relocated to the evaluation of the availability of e-government services (i. e., supply, maturity level, etc.). Consequently, the research focus has transited to the actual use of e-government solutions (i. e., demand, usage, the gap among interest and use, the effects affecting use, etc.) and the appraisal of e-government effects (i. e., effectiveness, efficiency, equity, etc.) EMIS had developed as important ICTs component to share information for policy formulation in the education sector. Further, EMIS has undergone huge transitions. The role of EMIS has now transformed and is seen as a crucial instrument and support system for the construction of education policies, their management, and evaluation. Education Management Information System (EMIS) has now become an essential and a keyword (UNESCO 1998). Despite the deployment of ICTs, governments have persuaded to make the interaction among government and citizens (G2C), government and business enterprises (G2B) and government-to-government relationships (G2G) more friendly, convenient, transparent, and inexpensive. EMIS is an organized service unit generating, managing, and distributing educational data and information, regularly within a national Ministry or Department of Education. The management operations of EMIS comprise accumulating, storing, integrating, processing, organizing, disseminating, and marketing educational data and statistics in an appropriate and dependable fashion. EMIS is also a set of formalized and cohesive operational processes, procedures, and cooperative arrangements by which data and information about schools and schooling, such as amenities, teachers, students, pedagogic procedures, and evaluative outputs, are regularly shared, integrated, analyzed, and disseminated for educational decision use at each level of the educational hierarchy.

1.3 EMIS in Tamil Nadu

EMIS project came into existence in Tamil Nadu by 2013 with the partnership of Sarva Shiksha Abhiyan (SSA), Educational Management Information System comprises a common online portal which will serve as education content service and monitoring system and intradepartmental communication service system wherein details of primary, high and higher secondary schools will be provided. It would contain details of headmasters, teachers and non-teaching staff, apart from the number of students studying in each school, pass percentage, exam details, and other important information. The objective of the EMIS would also consists maintain the data pertaining to all the schools' pupils and teachers, in order to generate administrative and monitoring report. It is also utilized as attendance registers, would issue hall tickets provisions

to public board exams, issue TC on line and also to provide information to the State election commission to generate voter IDs for the entitled people. Further, EMIS also involves maintenance of proceedings of children delivering unique identification card with photo and profile with barcode to every child called Smart Card to track the students and guaranteeing the distributing benefits/incentives from Government to the children. Surveillance can be made through monitoring the attendance in classrooms. It would also enable Teachers Attendance Monitoring System for ensuring regularity and punctuality in attending school. It would also serve as education content server termed ECS to build up child's knowledge, potentiality and talent. It is based on sophisticated Hi speed TNSWAN internet Connectivity. The servers installed and established at TNSDC at ELCOT (a Govt of Tamil Nadu). There are thirty districts covered under the projects and 180 personnel (Teachers) functions as district coordinators and 399 block coordinators also deployed to cater EMIS services at block level and they trained to upload the data periodically.

2. OBJECTIVES OF THE STUDY

- To examine the determinants of EMIS system success and satisfaction of EMIS system by validating Information System model
- To assess the level of satisfaction of EMIS users

2.1 Data and Methodology

Survey method has been adopted for the study. A structured questionnaire was used for the survey. It contains 19 questions which included both demographic details of respondents as well as statements seeking opinion with respect to level of satisfaction of users. The sample of the study consists of respondents from different Government departments of Tamil Nadu. Five factors were identified and a questionnaire for examining perceived satisfaction and questionnaire testified through pilot study. A total of 263 completed survey questionnaires were received back. The further scrutiny of questionnaires revealed that 20 of them were partially complete and so rejected from the subsequent analysis. Hence 243 were usable responses. This was the basis for the empirical analysis for measuring the satisfaction of EMIS users. The required data was collected from EMIS coordinators from district and block level. Out of 180 total district level EMIS coordinators and 399 block level coordinators 75 samples were selected from district level coordinators and 168 samples were selected from block level coordinators of SSA data centers across Tamil Nadu. The study utilized a purposive sampling technique to collect the data. Structure questionnaire was utilized to collect the information pertaining to the components influence on the success of the EMIS model in disseminating the data for planning and monitoring. Reliability analysis was carried out to ensure the intensity of reliability of the data collected. Structural equation model has deployed to analyse the data.

3. OVERVIEW OF PROPOSED RESEARCH MODEL FOR EXAMINING SUCCESS FACTORS OF EMIS

The proposed updated model for this IS Study is derived from (Rana, N., Dwivedi, Y., Williams, M. & Weerakkody, V. (2015). The model was used by (Rana, N., Dwivedi, Y., Williams, M. & Weerakkody, V. (2015) was utilized in the context of G2C systems. This study is confined to G2G background and hence the constructs of perceived risk and behavioral intention were alienated from the conceptual model. Being a Government imperative for use of EMIS system, the constructs of behavioral intention and perceived risk were not found to be relevant to the scope of this study.

Being a mandate of the Government, it is imperative for all Government employees to use ICT applications. The vision of the Government of Tamil Nadu is to establish an integrated environment for delivering seamless Government to Citizen (G2C), Government to Employee (G2E), Government to Government (G2G) and Government to Business (G2B) services in a cost-effective manner (Of & Nadu, n. d.). G2G comprised the services provided between Government Organizations, Departments, Authorities and other Government Organizations, Departments and Authorities (Of & Nadu, n. d.).

Secondly considering the perceived risk was defined as individual's subjective expectation of suffering a loss in pursuit of the desired outcome (Rana et al., 2014), in the present scenario in the year 2018 due to enhancement of ICT technologies, adequate measures are in place to ensure that no loss of data takes place.

The research model for the study is provided in Figure 1.

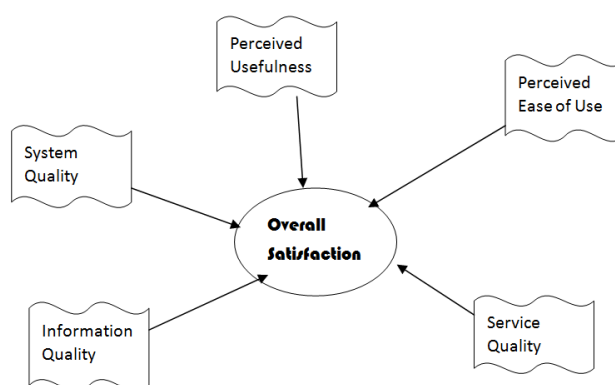


Figure 1: Proposed Research Model

3.1 Hypotheses: Five Sets of Hypotheses were Formulated for the Study, they were

- H1: Information quality is a significant component for overall satisfaction of EMIS usage.
- H2: System quality is a significant component for overall satisfaction of EMIS usage.
- H3: Service quality is significant component for overall satisfaction of EMIS usage
- H4: Perceived ease of use is a significant component for overall satisfaction of EMIS usage.
- H5: Perceived usefulness of use is a significant component for overall satisfaction of EMIS usage.

3.2 Reliability Analysis - Cronbach's Alpha (α)

Reliability analysis was performed using Cronbach's alpha. When using Likert-type scales it is imperative to calculate and report Cronbach's alpha coefficient for internal consistency reliability for any scales or subscales one may be using (Gliem & Gliem, 2003).

Table 1: Reliability Test

Case Processing Summary		N	%	Cronbach's Alpha	N of Items
Information Quality	Valid	240	98.8	0.811	243
	Excluded	3	1.2		
	Total	243	100		
System Quality	Valid	239	98.4	0.765	243
	Excluded	4	1.6		

	Total	243	100		
Service Quality	Valid	241	99.2	0.801	243
	Excluded	2	0.8		
	Total	243	100		
Perceived Ease of Use	Valid	240	98.8	0.755	243
	Excluded	3	1.2		
	Total	243	100		
Perceived Usefulness	Valid	240	98.8	0.722	243
	Excluded	3	1.2		
	Total	243	100		

Source: Computed from Primary survey

4. ANALYSIS

This study intended to grasp the perceptions of the EMIS coordinators towards assessing the significance of the various components on the success of the project and also enable to disseminate the required information in time thereby facilitating the monitoring and planning operations of the education sector in Tamil Nadu. Data analysis implicitly indicated the proximity of EMIS model towards the intensity of success of e-governance in the education sector. Tamil Nadu has been selected as it has obtained a prominent position in human development sectors as compared to rest of India. Further, state intervention in provision and regulations of education has been escalating consistently and the importance of ICTs has increased and it has become indispensable to combat the voluminous activities in education. Further, it is also reported that periodical monitoring and evaluation of pedagogic process, logistic arrangements, provision of amenities, enhance the enrolments, decrease of drop out activities need to be registered and information pertaining to that disseminated transparently thereby carry out planning and monitoring of SSA activities properly.

Table 2: Socio-Demographic Profile

	Response Category	Nos	Percent	Mean	Median	Std. Deviation
Gender	Male	75	30.9	1.69	2	0.462
	Female	168	69.1			
Age	Less than 26	1	0.4	3.44	4	0.76
	26 - 35	37	15.2			
	36 - 45	59	24.3			
	More than 45	146	60.1			
Job Position	Senior	143	58.8	1.55	1	0.722
	Middle	67	27.6			
	Lower Level Manager	33	13.6			
Number of Years of Experience	Less than 6	22	9.1	2.62	3	0.65
	6 to 10 years	47	19.3			
	11 to 15 years	174	71.6			
	More than 15 years	0	0			
Educational Qualification	High School	0	0	1.72	2	0.451
	Graduate	70	28.8			
	Post Graduate	173	71.2			
IT Knowledge	Strategic	70	28.8	1.72	2	0.452
	Operational	173	71.2			

5. DISCUSSIONS

The study was utilized to validate satisfaction of EMIS users and authenticate the DeLone and McLean system success model detailed out in Annexure 10.1 in G to G context. Structural Equation Modeling (SEM) is a multivariate

technique, which evaluates a series of inter-associated variables correspondingly. The measurement model defines relations among the observed and unobserved variables. It provides the connection among scores on a calculating instrument (i. e. the observed indicator variables) and the essential constructs they are proposed to estimate. The measurement model represents, therefore, the Confirmatory Factor Analysis (CFA), in that it assumes the design by which each measure loads on a particular factor. It concentrates on authorizing the model and does not clarify the relations between constructs.

Table 3: Fit Indices of the Structural Model

Fit Statistics	Values
	2581.12
Df	846.91
Goodness of fit index(GFI)	0.72
Adjusted Goodness of Fit Index ((AGFI)	0.70
Normed Fit Index (NFI)	0.78
Relative Fit Index (RFI)	0.77
Comparative Fit Index (CFI)	0.81
Incremental Fit Index (IFI)	0.81
Tucker Lewis Index (TLI)	0.80
Root mean Square Error of Approximation(RMSEA)	0.05
Root Mean Square Residual (RMR)	0.05

Source: Computed from Primary survey

The projected model appears to be contiguous with positive degrees of freedom (920.5) as revealed in table. In this model there are 196 distinct sample mobility (i. e., pieces of information) from which to compute the calculations of the default model, and 17 distinct parameters to be evaluated, leaving 846.9 degrees of freedom, which is higher degree of confidence. Thus, the model endorsed on the basis of degree of confidence. The model fit indices too provide a reasonable model fit for the structural model. Goodness of Fit index (GFI) obtained is 0.72. The Adjusted Goodness of Fit Index (AGFI) is 0.70. The Normed fit Index (NFI), Relative Fit index (RFI), Comparative Fit index (CFI), Tucker Lewis Index (TLI) are 0.77, 0.81, 0.81, 0.80 correspondingly. RMSEA is 0.05, and Root Mean Square Residual (RMR) is also 0.05. Hence, it is determined that the proposed research model fits the data reasonably.

Table 4: Structural Equation Modeling Path Coefficients

Variables	Path	Path Coef.	OIM Std. Err.	t value	P value
Information Quality	IQ→EMIS	0.631	0.17	0.22	0.002
System Quality	SQ→ EMIS	0.991	0.47	0.20	0.002
Service Quality	SER→ EMIS	0.224	0.36	0.21	0.003
Perceived Usefulness	PU→ EMIS	0.223	0.4	0.84	0.003
Perceived Ease of Use	PEU→ EMIS	0.269	0.49	0.45	0.001
Overall Satisfaction		0.23	0.23	0.81	0.002

Source: Computed from Primary survey

Table 5: Variables in the Structural Equation Modeling to Measure the Path Coefficients towards Satisfaction of EMIS Usage

EMIS Overall Satisfaction	Path direction	Variables	Unstandardized Co-efficient	Std. Error	t-value	Variation	Standardized Co-efficient	Path Coefficients	p- value
Information Quality	IQ← PAI	Cons	6.140	0.679	73.860	1.585	4.146	0.922	0.001
		PAI	0.905	0.667			0.277		
	IQ← GIIT	Cons	6.012	0.058	5.484	1.006	5.635	0.910	0.001
		GIIT	0.931	0.358			0.498		
	IQ← GUI	Cons	6.045	0.422	1.944	63.888	0.641	0.680	0.003
		GUI	0.722	1.792			0.530		
	IQ← RI	Cons	5.901	0.037	1.728	0.486	9.715	0.910	0.003
		RI	1.025	0.144			0.098		
System Quality	SQ← UF	Cons	5.955	0.049	6.624	-0.002	7.465	0.700	0.003
		UF	4.306	0.643			1.260		
	SQ← EU	Cons	5.691	0.302	0.108	32.952	0.725	0.933	0.002
		EU	4.807	1.099			0.005		
	SQ← ETGRI	Cons	5.687	0.062	3.324	1.390	3.744	0.920	0.001
		ETGRI	1.720	0.347			0.265		
Service Quality	SQR ← PRI	Cons	5.498	0.060	4.380	1.216	4.055	0.812	0.002
		PRI	1.249	0.335			-0.403		
	SQR← GIWST	Cons	5.881	0.292	1.500	30.552	1.350	0.800	0.001
		GIWST	0.841	1.110			0.083		
	SQR← GPSTP	Cons	5.856	0.059	94.128	0.960	5.282	0.570	0.003
		GPSTP	0.577	0.000			0.593		
Perceived Usefulness	PU← EOP	Cons	5.753	0.300	0.096	1.728	1.033	0.718	0.001
		EOP	0.079	0.811			0.006		
	PU← EPS	Cons	5.798	0.294	3.216	2.796	1.250	0.809	0.002
		EPS	1.164	0.806			0.149		
	PU← UEE	Cons	6.045	0.062	6.696	0.900	3.630	0.750	0.005
		UEE	0.770	0.270			0.769		
Perceived Ease of Use	PEU← ELO	Cons	6.066	0.054	4.272	0.660	6.798	0.814	0.004
		ELO	1.107	0.308			-0.766		
	PEU← HTCUI	Cons	5.823	0.052	2.472	0.948	3.307	0.910	0.001
		HTCUI	1.092	0.194			0.246		
	PEU← TSFTI	Cons	5.934	0.293	5.064	1.680	1.241	0.922	0.001
		TSFTI	1.032	0.814			-0.110		
	PEU← EBCIP	Cons	5.679	0.512	1.764	9.360	0.588	0.910	0.001
		EBCIP	0.913	1.429			0.132		

Source: Computed from Primary survey

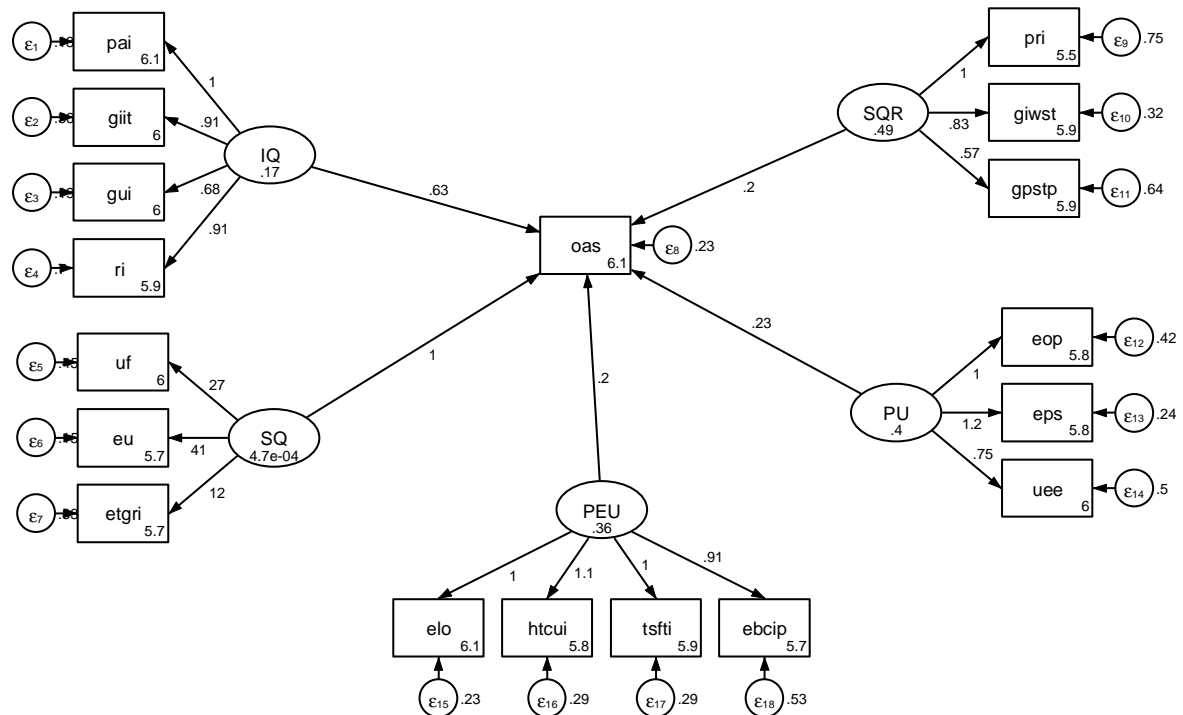


Figure 2: Path Analysis Diagram

6. DISCUSSIONS

The study proposed to validate the model constructed to testify influence of various components of EMIS on the satisfaction level of its users thereby adjudicate perceptions of the users on the comfort of utilizing EMIS. IS success model has been utilized to validate the satisfaction level of EMIS. Therefore, the study integrated constructs from DeLone and McLean's (2003) and Seddon's (1997) IS success models, to form a model that could explain the satisfaction of the EMIS, as perceived by the potential users of this system. Empirical findings of the study implicitly revealed that EMIS operation is an important component of e-governance in Tamil Nadu which enrich the quality of services of the public education system in Tamil Nadu. Initially, the descriptive analysis revealed that 69.1 percent are women employees and rest of 30.1 are male which indicated that the proportion of women are larger in SSA data centers as the government employed women teachers up to V standard so the proportion of teachers are high. Majority of the employee's age were more than 45 as 60 percent constitute in this category. Similarly, a number of years of experience were more than 10 years which implied that SSA coordinators relatively have sound experience and a significant portion of the employees (71.6%) are graduate. Further, 71.2% percent has got IT knowledge. Almost all the parameters (Information Quality, System Quality, Service Quality Perceived Usefulness, Perceived Ease of Use, Perceived Satisfaction) positively influenced the success of EMIS since the path co-efficient between EMIS success and the endogenous parameters positively correlated like Information Quality (0.631), System Quality (0.991), Service Quality (0.224) Perceived Usefulness (0.223) Perceived Ease of Use (0.269) at 0.005 percent level of significance. The outcomes of the path co-efficient of the components of the variables relating to endogenous variables clearly displayed that almost all the components path co-efficient is positively associated to the endogenous variables. PAI (provide adequate information) positively connected to IQ (information quality) variable with the Path Coefficients of 0.922 at 1% level of significance. GIIT (Got the information in time) optimistically associated to IQ (information quality) variable with the Path Coefficients of 0.910 at 1% level of significance. GUI (Got updated information) optimistically associated to IQ (information quality) variable with the Path Coefficients of 0.781 at 5% level of significance. The empirical substantiation implied that all the components confined to IQ (information quality) have influencing IQ positively as it has been endorsed in existing literature pertaining to DeLone and McLean models as well. UF (user friendly) optimistically associated to SQ (System Quality) variable with the Path Coefficients of 0.700 at 5% level of significance. EU (Easy to use) optimistically associated to IQ (System Quality) variable with the Path Coefficients of 0.933 at 1% level of significance. ETGRI (Easy to get required information) optimistically associated to IQ (System Quality) variable with the Path Coefficients of 0.920 at 1% level of significance. The empirical verification clearly implied that the components of SQ strongly have positively influence over SQ as earlier studies pertaining to DeLone and McLean models indicated that SQ is the important constituent of satisfaction of the system, in addition, system quality is the important determinant of the satisfaction of EMIS usage. PRI (Provide dependable services) optimistically associated to SQR (Service Quality) variable with the Path Coefficients of 0.812 at 5% level of significance. GIWST (Got information when stated time) optimistically associated to SQR (Service Quality) variable with the Path Coefficients of 0.800 at 1% level of significance. GPSTP (Give prompt service to peer departments) optimistically associated to SQR (Service Quality) variable with the Path Coefficients of 0.570 at 5% level of significance. It is clear from the empirical findings that service quality measured in terms of reliability, responsiveness, assurance has a noteworthy influence on satisfaction on EMIS usage adjudicated from the perceptions of the users under E to G mode. EOP (Enhanced overall performance) optimistically associated to PU (Perceived Usefulness) variable with the Path Coefficients of 0.718 at 5% level of significance. EPS (Enhanced productivity of self) optimistically associated to PU

(Perceived Usefulness) variable with the Path Coefficients of 0.809 at 1% level of significance. UEE (Useful to enhance effectiveness) optimistically associated to PU (Perceived Usefulness) variable with the Path Coefficients of 0.750 at 5% level of significance. The outcome of the results implied that user's involvement has enhanced the utility of the EMIS which eventually endure the overall satisfaction of the system. EOP (Enhanced learning to operate) optimistically associated to PEU (Perceived Ease to Use) variable with the Path Coefficients of 0.814 at 5% level of significance. HTCUI (Have interaction clear and understandable) optimistically associated to PEU (Perceived Ease to Use) variable with the Path Coefficients of 0.910 at 1% level of significance. TSFTI (Tamil Nadu system facilitate to interact independently) optimistically associated to PEU (Perceived Ease to Use) variable with the Path Coefficients of 0.922 at 1% level of significance. UEE (Easier to become competent) optimistically associated to PEU (Perceived Ease to Use) variable with the Path Coefficients of 0.910 at 1% level of significance. The findings reaffirm that perceived easy to found to be the important determinant of satisfaction and success of EMIS in Tamil Nadu. Perceived Ease of Use dimension to the otherwise utilitarian dimensions in IS success model is much desired. Thus, it is found that the Perceived Ease of Use of the EMIS substantially affects the success of EMIS. The empirical verification clearly indicated that all the endogenous variables are positively influence the success and satisfaction level of EMIS usage at 0.5 and 0.01 level of significance. Therefore, the constructed hypotheses are accepted which implied that satisfaction and success of EMIS validated the IS model with essential empirical substantiation. Since the path co-efficient of endogenous variables have the positive influence on proximity and success of EMIS. Thus, the IS model has validated with the empirical adjudication.

7. CONCLUSIONS

ICTs implications in government operations have enhanced the quality of the public services by increasing transparency, reducing procedural delay, facilitating the periodical planning and monitoring. Especially, G to G operations had enhanced the quality of the government services and the digitalized operations accentuate the process by making it more transparent and quicker. Government of Tamil Nadu digitalizing their voluminous activities through e-governance which manifested in the digitalized activities in several government sectors. The role of e-governance in the education sector in Tamil Nadu was enhanced to a significant level after the implementation of EMIS. The sources of information on various spheres of activities pertaining to students, teachers and the logistics was found to be of paramount importance in framing the policies and this lead to a decline in the lacunas in operations. Further, educational activities are a continuous process and it entails huge procedures; those activities need to be registered periodically and disseminated to the authorities to review the same to conceive adequate policy measures to enrich the quality of education. The present study has made an attempt to examine the determinants of success of EMIS in Tamil Nadu and the importance of e-governance in public schools' functions from the perceptions of the coordinators of EMIS across Tamil Nadu. The outcome of the empirical verifications indicate that EMIS facilitate to disseminate the required information and enables to interact with the authorities in an inefficient manner thereby facilitate the planning and monitoring operations of the services rendered in public schools. The study also implied that connectivity of heterogeneous clusters of operations comes under one roof for surveillance and further operations. EMIS has facilitated the quicker remedies to lacunas as the information have been periodically disseminated to the concerned officials and also enable them to compare the issues and solutions in a more comprehensive manner. With respect to the comfort in operations, a significant portion of the coordinators found EMIS an appropriate and convenient model which decelerate the earlier lacunas in reporting, disseminating and receiving the review on development procedures. Further it also decline the procedural delay caused due to lacunas in compiling the related

information for the policy formulation. The focus of the study is largely confined to the perceptions of the users of EMIS and its significance in the success of e-governance. Thus, from the empirical verification, it is evident that EMIS operation was found to be a significant device in disseminating the adequate information for periodical review and policy formulation on public education. In addition, EMIS has enriched the quality of services of public schools and also connect the various implications of various welfare measures provided by the government to the student; especially it was found to be more beneficial to the rural pupils. It is also reported that EMIS operations are an important component of e-governance and it needs to be enriched with more updated infrastructure especially among internet services in rural areas. It is concluded that EMIS is the important ingredient for successful implications of e-governance in Tamil Nadu which enrich the information dissemination to the authorities to enable inplanning and monitoring which eventually enrich the quality of services of public schools.

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ANNEXURES

Description of Model

There are numerous methods to appraise the success of an information system (IS) out of which popular and most validated model is the DeLone and McLean IS success model (D&M model). The D&M model was initially advocated in 1992 and was restructured with some amendments in 2003. This study on the measures provided in the updated model. The model delivers six interrelated dimensions of IS success: system quality, information quality, service quality, (intention to) use, user satisfaction, and net benefits. The D&M model has been tested and validated in a number of IS studies. For example, it has been applied and validated in studies evaluating the success of e-commerce systems, knowledge management systems, e-government systems etc.

Theoretical Background - IS Success Models

There are primarily three theories given in the area of IS success. The first IS success model was given by DeLone and McLean (W. H. DeLone & McLean, 1992) with six factors namely system quality, information quality, use, user's satisfaction, individual impact, and organizational impact (DeLone and McLean, 1992). In order to address criticism by several studies (such as Seddon and Kiew, 1996) relating to some of its constructs such as individual impact, organizational impact and use, Seddon (Seddon, 1997) introduced a re-specified model of DeLone and McLean (1992) where use of the system was considered to have the results of various types, perceived usefulness was introduced in the model as an IS measure (Rana et al., 2014).

Latter in the year 2003, DeLone and McLean discussed many of the significant IS research efforts that have applied, validated, challenged, and offered enrichments to their original model. The updated IS success model (DeLone and McLean, 2003) incorporated a new construct 'service quality' and substituted the variables, individual impact and organizational impact, with net benefits with accounting for benefits at different levels of analysis (Rana et al., 2014).

Questionnaire

Sample Questionnaire

Demographic Details

S. No	Question	Circle Appropriate Response
1	Gender	Male/ Female
2	Age	0-25, 26-35, 36-45, 46 and above
3	Job Position	Senior, Middle, Lower
4	Experience in Years	0-5, 6-10, 11-15
5	Qualification	Graduate, Post Graduate, Doctorate
6	IT Knowledge	Strategic, Operational

Put a tick in any column to reflect your opinion with respect to each statement where

‘SD’ stands for strongly disagree

‘DG’ stands for disagree

‘SAD’ stands for somewhat disagree

‘NAD’ stands for neither agree or disagree

‘SWA’ stands for somewhat agree

‘AG’ stands for agree

‘SA’ stands for strongly agree

Table

S. No	Construct	Question	SD	DG	SAD	NAD	SWA	AG	SA
1	Information Quality	The EMIS system provides sufficient information							
2		Through EMIS System I would get the information I need in time.							
3		Information provided by EMIS System would be up-to-date							
4		Information provided by EMIS System would be reliable							
5	System Quality	The EMIS system is user friendly							
6		The EMIS system is easy to Use							
7		I find it easy to get the EMIS system to do what I would like it to do							
8	Service Quality	The EMIS system would provide dependable services							
9		The EMIS system would provide services at the time it promises							
10		The EMIS system would give prompt service to department users							
11	Perceived Usefulness	Using the EMIS system would improve my overall performance							
12		Using the EMIS system would increase my productivity							
13		Using the EMIS system would enhance my effectiveness							

14	Perceived Ease of Use	Learning to operate the EMIS system would be easy for me							
15		My interaction with the EMIS system would be clear and understandable							
16		I would find the EMIS system to be flexible to interact with							
17		It would be easy for me to become skillful at using the EMIS system							
18	Perceived Satisfaction	I feel EMIS system would adequately meet my needs of interacting with government agency							
19		EMIS system would efficiently fulfill my needs of interacting with government agency							
20		Overall, I would be satisfied with the EMIS system							

